

Mass Storage

Magnetic System

Mass Storage

Why we need Mass Storage:

- ✓ Non-Volatility
- ✓ Large storage space
- ✓ Low cost
- ✓ Ability to remove for Archival purpose

Mass Storage

Available Mass Storage:

- ✓ Magnetic Disks
- ✓ CDs
- ✓ DVDs
- ✓ Magnetic Tapes
- ✓ Flash Drives
- etc

Magnetic Systems

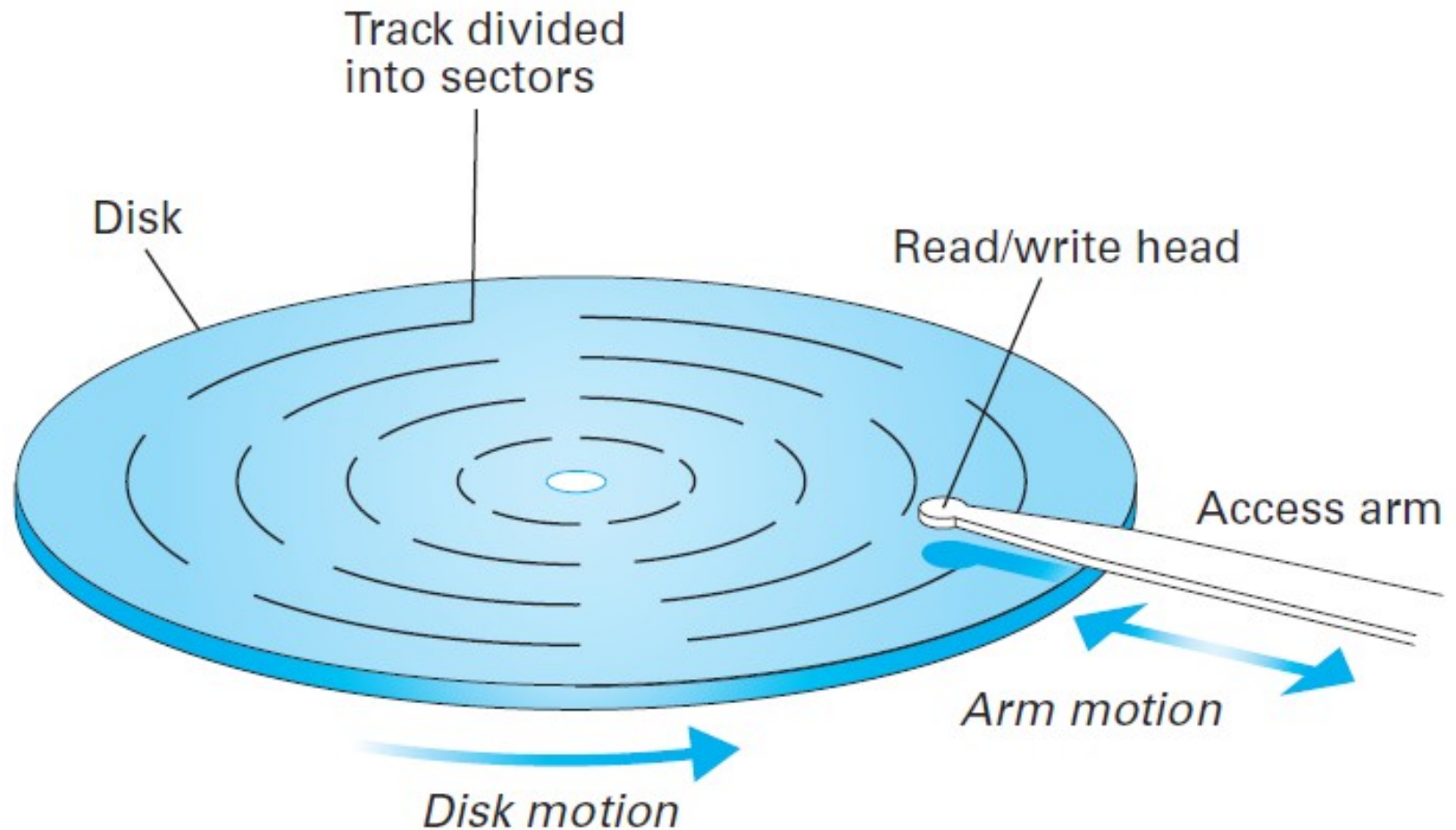
- ✓ Dominated Mass Storage Arena
- ✓ Today: Magnetic Dis and Hard disk Drive

Magnetic Systems

How It Works

- ✓ Thin spinning disk with magnetic coating to hold data
- ✓ Read/Write Heads placed above or below disk
- ✓ Each head traverses a circle called track

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Tracks

- ✓ Normally, Each track is divided into equal sectors
- ✓ Sectors have equal number of bits: 512 bytes to few KBs.
- ✓ Outer tracks contain more information.

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Zoned-bit recording

- ✓ Adjacent tracks form Zones.
- ✓ A typical disk contains 10 zones
- ✓ All tracks within a zone have equal number of sectors.

Evaluation of Disk Performance

Parameters

- ✓ Seek Time
- ✓ Rotation Delay/Latency Time
- ✓ Access Time
- ✓ Transfer Rate

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Seek Time

Seek Time

Time required to move the read/write heads from one track to another

Rotation Delay

Average amount of time required for the desired data to rotate around to the read/write head once the head has been positioned over the desired track

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Access Time

the sum of seek time and rotation delay

Transfer rate

the rate at which data can be transferred to or from the disk

Summary

Magnetic System

- ✓ Mass storage to Magnetic Systems, their needs
- ✓ How it works
- ✓ Evaluation parameters